

**TENTATIVE DETERMINATION TO EXTEND VARIANCE
FOR COMBINED SEWER OVERFLOW DISCHARGES
TO
ALEWIFE BROOK/UPPER MYSTIC RIVER BASIN**

FACT SHEET

This document is intended to provide a summary of the activities that have taken place since the Massachusetts Department of Environmental Protection's ("DEP") issuance of the Combined Sewer Overflow ("CSO") Variance for the Alewife Brook/Upper Mystic River Basin on March 5, 1999, and to provide a frame of reference for DEP's decision to extend the Variance for a period not to exceed three years, to September 1, 2013.

I. Background on CSO Control and Variance

Boston Harbor Case

As part of the Boston Harbor Case (D. Mass. C.A. No. 85-0489-RGS), the Massachusetts Water Resources Authority ("MWRA") is required to undertake corrective actions in its approved Long Term CSO Control Plan ("LTCP") to reduce or eliminate CSO discharges to Alewife Brook/Upper Mystic River. The LTCP is comprised of 35 wastewater system improvement projects that will reduce or eliminate CSO discharges at 84 outfalls in the metropolitan Boston area at an MWRA cost of \$884.1 million. The original long-term control plan for Alewife Brook/Upper Mystic River had an estimated cost of \$13.8 million in 1997. Currently, the cost to provide CSO control to Alewife Brook/Upper Mystic River is estimated at \$117 million, including MWRA and City of Cambridge cost shares.

MWRA has completed 24 of the 35 projects in the LTCP. Eight of the projects are currently in construction, including two of the five projects in the Alewife Brook CSO control plan. Two other projects, including an Alewife Brook project, are in design, and MWRA is scheduled to commence design of the last Alewife Brook project in April 2012. During 2010, MWRA expects that it will complete the East Boston Branch Sewer Relief project (Interceptor Relief for BOS003-014), that BWSC will complete the Bulfinch Triangle sewer separation project, and that the City of Cambridge will complete the Alewife Brook related project for interceptor connection relief and floatables control at CAM002 and CAM401B and floatables control at CAM001. Completion of these three projects in 2010 will bring the number of completed projects to 27 of the 35 projects in the LTCP. In addition, the City of Cambridge plans to commence construction of the CAM004 stormwater outfall and wetland basin (Contract 12) in 2010.

In July 1998, MWRA and the City of Cambridge began sewer separation for Alewife Brook CSO control in accordance with the recommended plan in the 1997 Facilities Plan/EIR and in compliance with the original set of milestones for this project in the Federal District Court schedule. The City of Cambridge completed four initial construction contracts in 1997-2002. The completed work significantly reduced CSO discharges to Alewife Brook. Hydraulic model simulations show that CSO discharges were reduced from 63 activations and 50 million gallons

annual volume in a typical year to 25 activations and 33 million gallons annual volume. MWRA, in cooperation with the City of Somerville, also completed the LTCP projects in the Upper Mystic River Basin in the period 1996 through 2001. The projects involved Somerville Marginal CSO Facility upgrades, completed in 2001, and elimination of CSO discharges at outfalls SOM006 and SOM007 by separating manholes common to the local storm drain and sewer systems, completed in 1996. CSO discharges to the Upper Mystic River Basin, not including Alewife Brook, are now limited to infrequent, treated discharges from the Somerville Marginal facility through the high tide outfall (SOM007A/MWR205A) upstream of the Amelia Earhart Dam.

CSO Control Plan Reassessment

In 2000, MWRA and the City of Cambridge suspended further design work and construction contract awards related to the 1997 Alewife Brook CSO plan because new information to support design showed that conditions in the Cambridge combined sewer system were markedly different from conditions assumed in 1997. MWRA and Cambridge determined that considerably more work, as well as an increased scope of work, would be necessary to meet the 1997 CSO control goals for Alewife Brook.

During early design efforts to implement the 1997 CSO control program, the City of Cambridge and MWRA collected new information that showed that the extent of Cambridge's combined sewer system in the Alewife Brook watershed exceeded what was documented in the 1997 FEIR. A previously unknown CSO outfall, CAM401B, was also discovered. MWRA subsequently determined that the CSO activations and volumes in this basin greatly exceeded the estimates in the 1997 FEIR, and that the 1997 recommended plan, at an estimated total cost of about \$13.8 million, could not achieve the recommended level of control.

To address this new information, MWRA and Cambridge completed a reevaluation of the original CSO control plan for Alewife Brook and on April 30, 2001, filed a Notice of Project Change ("NPC") under the Massachusetts Environmental Policy Act ("MEPA"). While the level of CSO control for the revised plan is comparable to the original 1997 plan and remains essentially one of targeted sewer separation, certain elements of the original plan, including areas slated for separation, were substantially modified, resulting in a change in expected impacts and mitigation measures, including measures to mitigate the effects of higher stormwater discharges on flooding of Alewife Brook. The projected cost of the project also increased significantly, from \$13.8 million in the 1997 plan to approximately \$117 million, based on most recent estimates. Notably, sewer separation associated with the CAM004 outfall requires construction of a new stormwater outfall to convey flows to a new wetland detention basin proposed within the Massachusetts Department of Conservation and Recreation ("DCR") Alewife Reservation.

In the September 15, 2001 Certification on the NPC, MEPA required that MWRA and Cambridge prepare and file with MEPA a comprehensive Response to Comments document (the "RTC"). On May 30, 2003 MWRA and Cambridge filed the RTC. The recommended plan now includes a larger stormwater detention basin in the Alewife Reservation (including on-site wetland replication and Compensatory Flood Storage) that has additional benefits related to habitat, public access, recreation, and public education. The work in the Alewife Reservation has been coordinated with staff from DCR.

The reassessment of predicted peak separate stormwater flows from the separation project indicates that there will be a "slight decrease to the flows to Alewife Brook after project implementation." DEP concurred with the revised CSO abatement plan as a suitable substitute for the original plan, given the changed conditions. DEP reserved judgment on the final level of CSO control and water quality standard until sufficient information was compiled during the course of the CSO Variance.

Final Variance Report (CSO Reassessment)

On July 1, 2003, in accordance with Section C. (1) of Alewife/Upper Mystic CSO Variance, MWRA submitted to DEP and EPA the Final Variance Report for the Alewife Brook and Upper Mystic River. This report provided detailed technical and financial information to support the long-term CSO abatement plan in the Alewife/Upper Mystic watershed. In the Final Variance Report, MWRA reported that additional CSO controls beyond those included in their revised CSO plan would not be cost-effective and would not provide meaningful water quality improvement, primarily due to the predominance of non-CSO pollution sources. Based on the technical and financial analyses included in the Final Variance Report, MWRA contended that the criteria needed to support a B_(CSO) classification were met, and MWRA requested that DEP take such administrative action.

During public review of the Final Variance Report, several advocacy groups and other stakeholders requested that DEP allow additional time for review and comment on this critical document. It also became apparent that there would be insufficient time to provide for this extended public review, to resolve outstanding technical issues relating to public and agency review, and to make administrative water quality standard determinations in this watershed within the time frame required under the first Variance extension. Due to these factors, and with public support, DEP again formally extended the CSO Variance, from October 1, 2003 to September 1, 2004. EPA issued written comments indicating that it was not in opposition to the second Variance extension.

This second Variance extension maintained most of the conditions included in the previous CSO Variance, and MWRA, Cambridge, and Somerville remained responsible for implementing the Nine Minimum Controls, monitoring CSO discharges, implementing the cost-effective CSO measures included in the recommended plan from the NPC, and implementing a receiving water monitoring program.

After the Final Variance Report was issued MWRA presented additional information on its financial capability analysis, incorporating into the analysis the costs of housing in the Boston metropolitan area.

Regulatory and Court Approval of a Revised LTCP

In August 2005, MWRA recommended a revised region-wide LTCP that included a schedule for implementing the revised plan for Alewife Brook. In March 2006, MWRA reached agreement with EPA, DEP and the U.S. Department of Justice ("DOJ") on the plan and a new schedule. The agreement was filed with the Federal District Court as part of a joint motion to

amend the court schedule in the Boston Harbor Case (D. Mass. C.A. No. 85-0489). At that time, DEP and EPA determined that MWRA's LTCP satisfied the requirements for a variance from water quality standards for CSO discharges to the Alewife Brook/Upper Mystic River Basin through 2020, when the LTCP would be fully implemented and verification of attainment of the long-term levels of CSO control would be made. As part of this determination, DEP and EPA agreed that DEP would issue and EPA would approve five consecutive extensions on no more than a three-year duration each through 2020, which would be consistent with and limited to the requirements in MWRA's LTCP.

In April 2006, the Court allowed the joint motion and issued an Order with a new schedule. Under the Order, MWRA has until the year 2020 to complete the remaining CSO work and subsequent monitoring to verify that the long-term CSO control goals are achieved. In addition, the United States and MWRA agreed to withdraw the February 27, 1987 Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflows and replace it with a Second Stipulation that requires MWRA to implement the CSO requirements set forth in the court schedule and to meet the levels of control described in MWRA's LTCP. In July 2006, the Court accepted revisions to Schedule Six incorporating a new Schedule Seven. The revisions include modified or additional milestones for projects in the Alewife Brook, Charles River and East Boston CSO plans.

As noted above, MWRA and the City of Cambridge are currently in the process of designing and constructing several CSO projects that, when completed, will further reduce CSO discharges to the Alewife Brook.

CSO Variance

A three-year Variance for CSO discharges to the Alewife Brook/Upper Mystic River Basin was issued by DEP on March 5, 1999. The Variance is a short-term modification of the Water Quality Standards issued by DEP subject to approval by the United States Environmental Protection Agency ("EPA"). The Variance allows limited CSO discharges from the outfalls along the Alewife Brook/Upper Mystic River permitted to MWRA and the cities of Cambridge and Somerville, subject to specific conditions. Other standards and criteria of the receiving waters' Class B designation are unaffected and remain in force.

The CSO Variance was issued in 1999 to allow time for DEP to obtain the information necessary to determine the appropriate long-term water quality standard and level of CSO control for the Basin, while ensuring that recommended CSO controls approved by DEP would be implemented. The Variance required the implementation of the cost-effective CSO control actions included in MWRA's Final CSO Facilities Plan and Environmental Impact Report, July 31, 1997 (the "FEIR") and also required other actions necessary to properly assess pollutant loads in the Basin and minimize the impact of CSO discharges.

The March 5, 1999 Alewife Brook/Upper Mystic River Basin Variance included specific conditions on activities of MWRA and the cities of Cambridge and Somerville including the submittal of a Reassessment Report by MWRA summarizing information gathered during the Variance process and reevaluating the costs and benefits of additional CSO controls in the

Alewife Brook/Upper Mystic River Basin, up to and including elimination of CSOs. The Reassessment Report was intended to provide the basis for a final determination on the appropriate long-term level of CSO control.

With the variance, DEP approved MWRA's LTCP for the Alewife Brook/Upper Mystic River Basin and required MWRA to implement the LTCP, evaluate the potential for infiltration/inflow (I/I) removal to increase CSO control and benefits, and conduct additional water quality investigations to assess pollutant loadings to these waters. With the new information collected during the variance period, MWRA was required to report on whether additional CSO control measures beyond the LTCP recommendations might be cost effective.

On December 14, 2001, MWRA submitted a request to DEP to extend the Alewife Brook/Upper Mystic River Basin Variance for 18 months and defer the requirement for the CSO Reassessment Report until July 1, 2003. After review of public comments on the MWRA request, DEP agreed that an extension was reasonable and necessary to complete the data collection and technical reports required under the Variance, and on May 5, 2002, DEP extended the Variance to September 5, 2003.

In July 2003, MWRA submitted a final variance reassessment report to DEP and MEPA, which evaluated alternative levels of CSO control and affirmed the recommended alternative and level of control that are now a part of an approved LTCP. DEP extended the variance again in 2003 for nine months and in both 2004 and 2007 for three years, respectively. Water quality data collection and water quality characterization by MWRA and other parties, including the Mystic River Watershed Association, have continued through these extension periods. The current variance extension expires August 31, 2010.

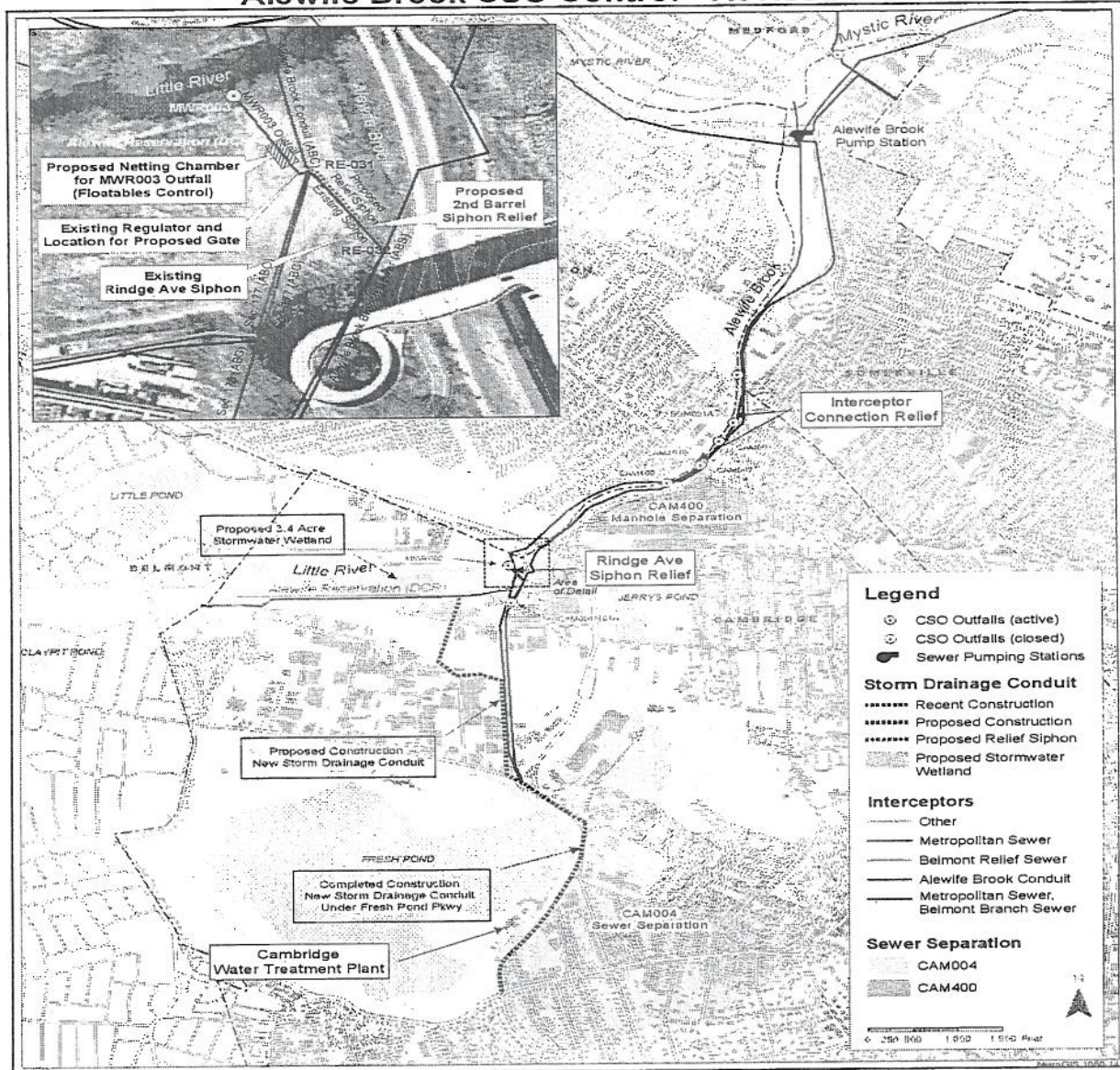
II. Level of CSO Control

Revised CSO Control Plan

The revised plan for CSO control along Alewife Brook comprises five component projects that were incorporated into Schedule Seven by the Federal District Court in the Boston Harbor Case (D. Mass. C.A. No. 85-0489) in April 2006. The projects include CAM004 Stormwater Outfall and Detention Basin (Cambridge Contract 12); CAM004 Sewer Separation (Cambridge Contracts 8, 8A and 9); CAM400 Manhole Separation and Interceptor Connection Relief and Floatables Control at CAM002, CAM401B, and SOM001A, and Floatables Control at CAM001 (Cambridge Contract 4/13); and Control Gate/Floatables Control at Outfall MWR003, MWRA Rindge Avenue Siphon Relief and Interceptor Connection Relief and Floatables Control for Outfall SOM001A (all included in a planned MWRA contract). In addition, the long-term performance of the MWRA Alewife Brook interceptors and the long-term levels of CSO control at the Alewife outfalls assume completion of pumping improvements at the Alewife Brook Pumping Station that are intended to restore the pumping capacity to its original design level.

Together, these projects are intended to further reduce CSO discharges to the Alewife Brook from the original 63 activations and 50 million gallons annual volume in a typical year to 7 activations and 7.3 million gallons annual volume. The total cost of the CSO control plan for Alewife Brook/Upper Mystic River Basin has increased from \$13.8 million in 1997 to approximately \$117 million today, a cost that is shared by MWRA and the City of Cambridge.

Figure 1
Alewife Brook CSO Control - Revised Plan

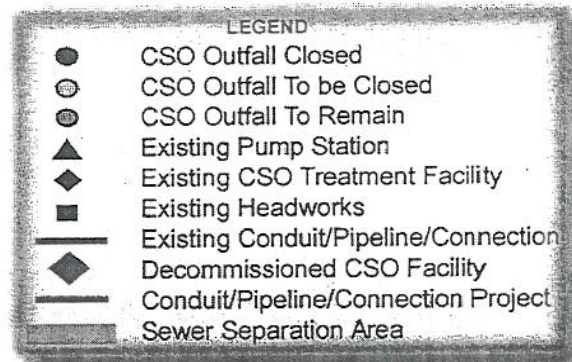
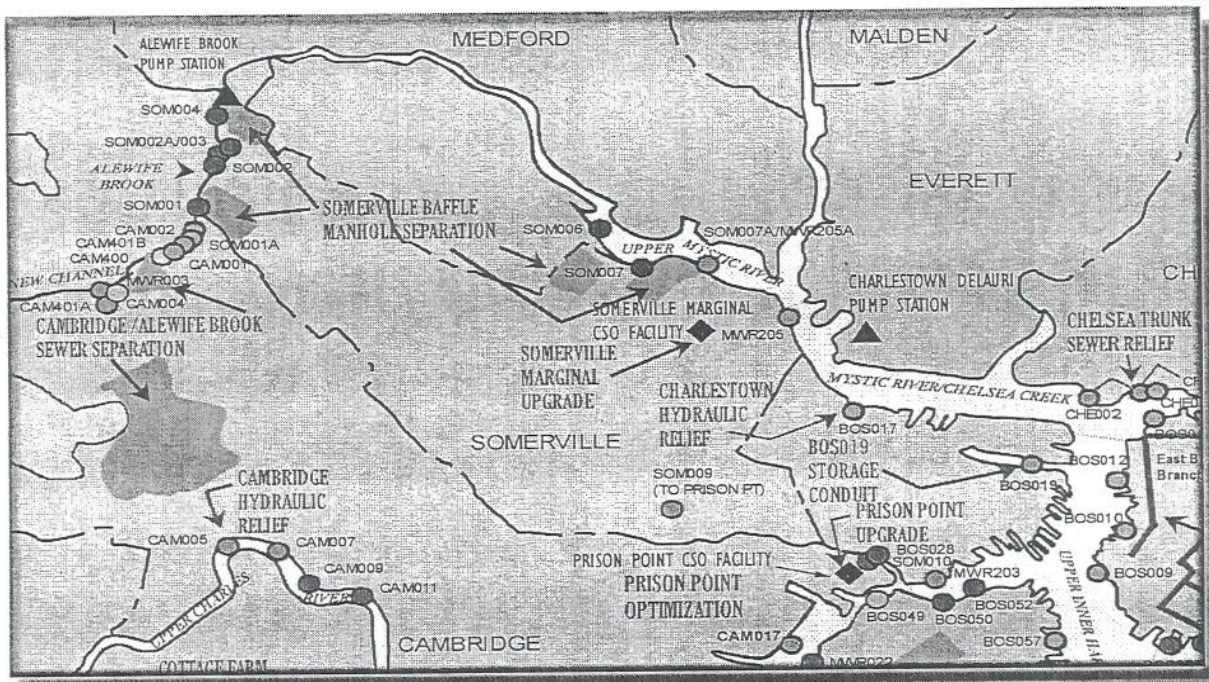


Implementation of these projects was delayed due to a wetlands permit appeal in 2005. After several years of delay due to the appeal, the City of Cambridge was able to make substantial progress with design of three of the five Alewife Brook projects in 2009 and to award a contract for two of the projects in January 2010.

The revised Alewife Brook CSO control plan is predicted to have the following benefits:

- 85 percent reduction in annual CSO volume discharged in a typical year;
- compliance with Class B water quality standards 98.5% of the time;
- improved stormwater quality resulting in a reduction in stormwater pollutant loads; and creation of additional wetlands and enhancement of walking trails in the Alewife Reservation.

Figure 2
Alewife Brook/Upper Mystic River Basin
CSO Locations and Projects



Completed Improvements (Alewife Brook and Upper Mystic River)

- Completion of early construction contracts for CAM004 Sewer Separation, by Cambridge in the period 1997-2002;
- Interim improvements to MWRA's Alewife Brook Pumping Station, by MWRA in 2009;
- Upgrades to the Somerville Marginal CSO Treatment Facility (affecting the infrequent discharges at outfall SOM007A/MWR205A), which MWRA completed in 2001 at a cost of \$4.0 million;
- Somerville manhole separation and closing of outfalls SOM001, SOM002A, SOM003, SOM004, SOM006 and SOM007, which City of Somerville completed in 1997 at a cost of \$500,000 funded by MWRA.

Scheduled Improvements (Alewife Brook)

- Separation of common manholes in the CAM400 tributary area and elimination of CSO discharges at this outfall;
- Relief of interceptor connections at regulators associated with outfalls CAM002 and CAM401B, and floatables control at these outfalls, and Floatables control at outfalls CAM001 and CAM401A;
- Construction of a new stormwater outfall and vegetated stormwater wetland to ensure that the separated stormwater flows from the CAM004 area will not worsen flooding along Alewife Brook and that the new stormwater flows receive a level of treatment;
- Sewer separation in the CAM004 area and elimination of CSO discharges to this outfall. Initial phases of this work have been completed by the City of Cambridge with MWRA funding and have significantly lowered CSO discharges to Alewife Brook. In addition, MWRA has completed interim improvements at its Alewife Brook Pumping Station that have also reduced CSO discharges to Alewife Brook;
- Construction of an overflow control gate and floatables control at outfall MWR003, relief of MWRA's Rindge Avenue Siphon, and interceptor connection relief and floatables control at outfall SOM01A; and
- Long-term improvements to MWRA's Alewife Brook Pumping Station.

Actual and Anticipated CSO Reductions

MWRA, with the cooperation of the cities of Cambridge and Somerville, has reduced CSO discharges and impacts to the Alewife Brook and Upper Mystic River through initial implementation of the long-term CSO control plan. These completed efforts include upgrade of MWRA's Somerville-Marginal CSO treatment facility; separation of common sewer and storm drain manholes to eliminate CSOs at several outfalls permitted to the City of Somerville; construction of storm drain and sewer trunk lines downstream of the CAM004 sewer separation areas, along Fresh Pond Parkway, and interim improvements to MWRA's Alewife Brook Pumping Station.

Somerville's work to separate common manholes has resulted in the elimination of untreated discharges at outfalls along the Upper Mystic River and the closing of several CSO outfalls along the Alewife Brook. The only remaining CSO outfall along the Upper Mystic

River is outfall MWR205A/SOM007A, which discharges CSO flows treated at the Somerville Marginal Facility at a point upstream of Amelia Earhart Dam during high tide. At lower tides, the treated flows are discharged to tidal waters below the dam, at outfall MWR205.

Construction completed to date, including early Cambridge construction contracts for CAM004 Sewer Separation and MWRA interim improvements to the Alewife Brook Pumping Station, has already reduced CSO activations and discharges along the Alewife Brook. Activation frequency has decreased from 63 to 22 in a typical rain year and discharge volume has decreased from 50 million to 27 million gallons.

Long-term Performance

MWRA's recommended plan is predicted to reduce annual CSO volume to Alewife Brook/Upper Mystic River by 85% in a typical year, from 50 million gallons to 7.3 million gallons. CSO activations in a typical year will be reduced from 63 to 7. At the recommended control levels, water quality will comply with Class B water quality criteria 98.5 percent of the time. Levels of CSO control at outfalls on the Alewife Brook for baseline (1997), current (2009) and revised recommend plan conditions are shown in Table 1.

Table 1: CSO Discharges at Alewife Brook Outfalls in a Typical Year

Outfall	Baseline Condition ⁽¹⁾		Current Conditions ⁽²⁾		Long-term CSO Control Plan ⁽³⁾	
	Activations	Volume (MG)	Activations	Volume (MG)	Activations	Volume (MG)
CAM001	1	0.01	0	0.00	5	0.19
CAM002	7	1.57	8	1.81	4	0.69
MWR003	1	0.06	1	0.07	5	0.98
CAM004	63	24.10	10	5.89	Closed	-
CAM400	10	0.80	8	0.63	Closed	-
CAM401A	7	2.74	5	1.46	5	1.61
CAM401B	25	10.50	22	8.47	7	2.15
SOM001A	10	9.89	9	8.21	3	1.67
SOM001	Closed		Closed		Closed	
SOM002A	Closed		Closed		Closed	
SOM003	Closed		Closed		Closed	
SOM004	Closed		Closed		Closed	
Total Alewife	63	49.70	22	26.53	7	7.29
SOM007A/ MWR205A	11	6.72	9	2.05	3	3.48
SOM007	2	0.04	Closed		Closed	
Total Upper Mystic	11	6.76	9	2.05	3	3.48

⁽¹⁾ Updated estimates from the April 2001 Notice of Project Change (NPC).

- (2) From MWRA modeling of 2009 system conditions.
- (3) From model predictions in Final Variance Report (Alewife) and 1997 FEIR (Upper Mystic). Construction of the long-term CSO control plan for Boston Harbor and its tributaries is scheduled to be complete by December 2015. The construction will be followed by a period of monitoring in accordance with Schedule Seven of the Boston Harbor Case.

Cost of the Long-term CSO Control Plan

The cost of the Alewife Brook/Mystic River CSO control plan has grown from \$13.8 million in 1997 to approximately \$117 million for the current recommended plan, a cost that is shared by Cambridge and MWRA. The large increase in cost is due to engineering investigation of the Cambridge sewer system revealing the extent of required sewer separation was substantially greater than originally assumed, higher unit costs for installation of new storm drain and other elements of the work, and the need for a new outfall and stormwater detention basin required to manage the increase in separate stormwater volumes that were not included in the original plan.

Implementation Schedule

Construction of all five projects is scheduled to be completed by December 2015. Cambridge combined two of the Alewife Brook CSO projects into one construction contract, Contract 4/13, which Cambridge commenced in January 2010. The work of this contract will separate common storm drain and sewer manholes in the neighborhoods near Massachusetts Avenue and Alewife Brook Parkway and will also upgrade city sewer system connections to MWRA's interceptor sewer, and provide floatables control at CSO outfalls along Alewife Brook near Massachusetts Avenue. The contractor plans to complete this work by the end of 2010.

Cambridge is also nearing the completion of final design for the stormwater outfall and wetland basin in the DCR Alewife Reservation. The wetland basin will accommodate stormwater flows that will be removed from the sewer system in future contracts and will attenuate the stormwater flows to avoid contributing to Alewife Brook flood levels. Cambridge plans to commence these construction contracts in the summer of 2010, and the work of these contracts is scheduled to be complete by the summer of 2012. Cambridge and MWRA have worked closely with DCR during development and environmental review of the Alewife Brook CSO control plan to ensure that the new facilities are compatible with DCR's Master Plan for the Alewife Reservation.

In addition, Cambridge plans to commence design of a fourth project, involving sewer separation in the area east of Fresh Pond Reservation, in the summer of 2010 and MWRA plans to commence design of the fifth and last Alewife project in 2012. The latter project involves improvements related to MWRA's CSO outfall to Alewife Brook (Outfall MWR003), located behind the Alewife Station, as well as improvements to the City of Somerville's Tannery Brook Conduit connection to MWRA's system and Somerville's related CSO outfall (Outfall SOM001A).

MWRA completed interim improvements to the Alewife Brook Pumping Station in 2009. In April 2010, MWRA issued the Notice to Proceed with the design contract for long-term improvements to the station. The project schedule calls for construction of the long-term improvements to be completed by March 2013.

Other Priorities to Ensure Continued Progress

Further water quality improvements in the Alewife Brook/Upper Mystic River watershed will rely largely on municipal efforts to address illegal discharges to storm drains, storm water Best Management Practices and other storm water impacts as they contribute to wet weather issues affecting these watersheds. DEP recognizes that progress is continuing to be made in these areas.

DEP also acknowledges the importance of proper operation, maintenance, and rehabilitation of MWRA and community sewer and storm water systems to assure optimized conditions for conveying wastewater flows through the system for treatment and discharge at Deer Island and improving storm water quality. Sewer system repairs and cleaning have resulted in improved conveyance capacities in a number of locations and have also contributed to mitigating CSO discharges by addressing localized system flow constraints.

III. Proposed Variance Extension and Next Steps

As part of the agreement on the LTCP reached in March 2006 among EPA, DEP, DOJ and MWRA, MWRA requested that the Variance for the Alewife Brook/Upper Mystic River Basin be reissued through 2020 when MWRA must complete the region-wide LTCP and subsequent monitoring to verify that the long-term CSO control goals are achieved. At that time, DEP and EPA determined that MWRA's LTCP satisfied the requirements for a variance from water quality standards for CSO discharges to the Alewife Brook/Upper Mystic River Basin through 2020. As part of this determination, DEP and EPA agreed that DEP would issue and EPA would approve five consecutive extensions on no more than a three-year duration each through 2020, which would be consistent with and limited to the requirements in MWRA's LTCP. MWRA bases this request on the work completed to date to achieve a high level of CSO control at certain outfalls, the expectation for significant CSO control and water quality improvement with the remaining CSO projects in the Alewife Brook CSO control plan, and the desire to provide a level of financial certainty and stability for its ratepayers.

Substantial and Widespread Social and Economic Impact

DEP has emphasized cost-effectiveness for CSO long-term control plans, to ensure that financial resources for pollution abatement actually provide improvements in water quality. The principles of cost-effectiveness and water quality benefits have been a major factor used by MWRA in the development of its present \$884.1 million CSO abatement plan. MWRA will spend more than \$173 million on CSO projects over the five-year period July 2010 through June 2015 (FY11-FY15), which is 15 percent of all planned capital spending and 26 percent of wastewater capital spending in the same period. MWRA sewer rates are among the highest in the nation and are projected to increase significantly over the next five years.

Implementation of the revised recommended plan will reduce CSO discharges to the Alewife Brook to a level that will allow attainment of Class B water quality standards 98.5 percent of the time. In accordance with DEP's CSO Guidance, cost-effectiveness, protection of sensitive uses, and the financial capability of CSO permittees are all important factors in making determinations on the appropriate level of CSO control.

MWRA submitted data related to DEP's finding of "substantial and widespread economic and social impact," the basis for its issuance of a Variance in 1997 (See 314 CMR 4.03(4)(f)). DEP documented for the current Variance ending August 31, 2010, its review of a report by Robert N. Stavins, Assessment of the Economic Impact of Additional Combined Sewer Overflow Controls on Households and Communities in the Massachusetts Water Resources Service Area, dated March 17, 2004. DEP also reviewed the Affordability Analysis Worksheets included in Appendix H of the Cottage Farm Report dated January 2004, which are based on EPA's Interim Economic Guidance for Water Quality Standards.

DEP's conclusions from its review of the documents submitted by MWRA and determination in support of the Variance Extension request have not changed. DEP, upon issuance of the 2007 Variance Extension, indicated that it would evaluate the information required by the Variance to determine whether there are additional cost-effective CSO controls. DEP has reviewed the new information regarding revisions to the Alewife Brook/Upper Mystic River CSO plan, as well as other revisions and cost changes in MWRA's LTCP, and has determined that additional controls beyond those recommended in the MWRA CSO Plan would not be cost-effective or affordable.

Based on these important considerations, DEP has determined that proceeding at this time with controls beyond those included in the MWRA Long-Term CSO Control Plan would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4), and that an extension to the CSO Variance is appropriate at this time. Issuing of the CSO Variance Extension in the Alewife Brook/Upper Mystic River watershed is consistent with EPA Guidance: *Coordinating CSO Long-Term Planning with Water Quality Standard Reviews (July 31, 2001)*, which asserts that longer term variances and renewal of variances are warranted given the extended duration necessary for implementation of LTCPs.

Determination to Extend Variance

DEP makes the following determinations:

- The MWRA CSO control plan for the Alewife Brook/Upper Mystic River, which includes projects to optimize sewer system performance and remove stormwater inflow through sewer separation, is responsive to the conditions and intent of the Variance and will achieve substantial CSO control benefits.
- MWRA has completed numerous analyses since the late 1980s evaluating alternatives for eliminating CSOs from the collection system tributary to the Deer Island Wastewater Treatment Plant. Among these are the 1997 FEIR, the April 30, 2001

Alewife Brook Notice of Project Change, and the July 2003 Alewife Brook and Upper Mystic River Final Variance Report. MWRA's revised LTCP incorporates all cost-effective and feasible CSO abatement projects for this watershed. At this point in time, it does not appear technically feasible to eliminate all CSO outfalls to this watershed given the engineering and infrastructure constraints in the MWRA interceptor system, headworks, conveyance tunnels, the Deer Island wastewater treatment plant, and the ocean outfall.

- Progress to date in implementing the LTCP for Alewife Brook and Upper Mystic River has greatly reduced CSO discharges to Alewife Brook, eliminated CSO discharges at several outfalls along Alewife Brook and Upper Mystic River, and improved treatment at MWRA's Somerville Marginal CSO Facility.
- Proceeding at this time with controls beyond those presently included in the revised LTCP would result in substantial and widespread social and economic impact as specified in 314 CMR 4.03(4). The cost of MWRA's CSO control program is substantial, at present included in MWRA's capital budget at \$884.1 million. MWRA's detailed financial impact assessment considered the effect of expected sewer rate increases, and, appropriately, median household income as adjusted by the relatively high cost of housing in the Boston area. The MWRA adequately demonstrated that proceeding at this time with CSO controls necessary for full attainment of Class B water quality standards in the Alewife Brook/Upper Mystic River watershed would result in substantial and widespread economic and social impact.

DEP concludes that extension to the CSO Variance for the Alewife Brook/Upper Mystic River watershed is appropriate at this time, and extends the CSO Variance for MWRA, and the cities of Cambridge and Somerville to September 1, 2013. A determination on the highest feasible level of CSO control and associated water quality standard is deferred until the LTCP is implemented and the associated benefits are verified in 2020, in compliance with Schedule Seven.

Future Actions

- (1) The Variance for CSO discharges to the Alewife Brook/Upper Mystic River Basin will be extended by a period not to exceed 3 years (September 1, 2013).
- (2) MWRA and the City of Cambridge shall implement all elements of the LTCP as defined in the Second CSO Stipulation and in accordance with Schedule Seven.
- (3) MWRA, the City of Cambridge, and the City of Somerville shall continue to implement the Nine Minimum Controls and report on CSO activations and volumes.
- (4) MWRA shall continue to implement its receiving water monitoring in the Alewife Brook/Upper Mystic River Basin watershed and submit an annual summary report on or before July 15 of each year.